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Environmental performance of **accommodation establishments** in the **protected areas**: case of Bolu, Türkiye

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Abstract | Protected areas in tourism destinations are among the places where sensitivity should be exercised for the tourism sector. Accommodation establishments, particularly in protected areas, are considered in terms of environmental performance. This study aims to reveal the environmental performance levels of accommodation establishments in protected areas. The scale developed by Erdoğan and Tosun (2009) was used for the purpose of evaluating the environmental performance in accommodation establishments. Study data has been collected from business owners and executive directors in accommodation establishments located in protected areas in Bolu province of Türkiye. The data obtained in the study has been analyzed through the AMOS package program. The findings obtained from the study reveal that the environmental performance of accommodation establishments is not sufficient. The performance of the establishments to save energy by using the key card control system in the rooms is at low levels. In particular, the performance of the establishments regarding managerial knowledge on the environmental protection is required to be increased. It is thought that this study will contribute to the literature as it is one of the limited studies dealing with the environmental performance of accommodation establishments located in protected areas.

Keywords | Environmental performance, accommodation establishments, protected areas, Bolu, Türkiye

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1. Introduction

One of the concepts that has gained importance for establishments in recent years is the environmental performance. The fact that establishments provide environmentally friendly services provides benefits in terms of both sustainability and competition. In recent years, businesses should give more importance to environmental performance in their production processes with the effect of climate change. With the awareness of consumers, environmental management practices have gained importance for protecting the ecosystem, preventing destruction in tourism destinations and for a sustainable tourism. Some environmental management practices are available within the scope of accommodation establishments in Türkiye. Environmental applications such as environmentally friendly facility (green star), white star facility, blue flag, ISO 14001 are considered necessary in order to minimize the negative environmental effects of establishments and to save costs.

The tourism sector has created new investment, production and new sources of income in environmental tourism since the 1980s. Tourism investment activities have been moved forward from the seacoasts to rural areas, national parks, protected areas and green areas. However, protected areas encounter and experience certain problems such as maintenance, development, lack of resources, inappropriate use by visitors and private establishments (Erdogan & Tosun, 2009). At this point, tourism protection areas are required to be supported for sustainable tourism development. Because raising environmental awareness and consciousness has become of most important.

Today, when the importance of environmental sensitivity is acknowledged to a further extent, environmental management practices in protected areas, especially in tourism activities, have gained great importance. There are studies in the literature on environmental studies in protected areas in tourism (Butzmann & Job, 2017; Erdogan & Tosun, 2009; Erdogan, 2012; Franco et al., 2021; Wu et al., 2017). Although there are many studies (Aminian, 2012; Carter et al., 2004; Chng et al., 2022; Ding & Pigram, 1996; Leslie, 2007; Tan et al., 2017) on environmental performance in the literature, only a limited number of these studies (Erdogan & Tosun, 2009; Aminian, 2012) are for facilities in protected areas.

The main objective of this study is to reveal the environmental performance levels of accommodation establishment directors in protected areas. Upon reviewing the relevant literature, in the study conducted by Erdogan and Tosun (2009) on Türkiye in Göreme Historical National Park, it is acknowledged that establishment directors in protected areas in tourism have some deficiencies in environmental issues (Erdogan & Tosun, 2009). From this point of view, there was a need to conduct another study for establishments in a different protection area in Türkiye. The choice of preference of Bolu province, comes from the fact that the located between the cities of Istanbul, which has the highest population in Türkiye and is an important touristic destination, and Ankara, which is the capital of Türkiye. In addition, Bolu province is one of the most preferred alternative tourism destinations by local tourists with its forestlands, nature and protected natural, historical and cultural areas. The results to be obtained shall provide theoretical contributions to the literature regarding the environmental performance of accommodation establishments in tourism protection areas. It shall also provide practical contributions to accommodation establishments in the relevant regions in terms of environmental practices.

2. Literature Review

2.1. Tourism and Environment

Studies in the literature on the relationship between tourism and the environment (Bertan,

2009; Ceylan, 2001; Hjalager, 1996; Kousis, 2000; Pigram, 1980; Montenegro, 2021) reveal the importance of these two concepts. Environmental factors need to be taken into account in order for the tourism sector to develop, improve and be sustainable. The environment should be one of the priority issues in the decision-making processes of the stakeholders in the tourism sector. Studies in the literature emphasize that establishments or destinations should address tourism and the environment together for a sustainable tourism sector. Because the studies reveal that tourism has an effect on the environment. It is stated that tourism causes destruction in destinations where it is highly intense. Therefore, this destruction can pose a threat to natural beauties or touristic destinations.

An attraction or destination can create a motivation at the point of being seen before it disappears with the positive effect of environmental awareness (Küçükergin & Gürlek, 2020). Last chance tourism (LCT) is a type of tourism that emerges from the belief that a place, person or object of interest will not exist or be visited in the future (Fisher & Stewart, 2017). According to Lemelin et al. (2010: 478), last chance tourism is a type of tourism in which tourists seek and especially visit environmental or seascapes that are in danger of extinction, lost natural or social heritages. Last chance tourism represents a great risk of jeopardizing or even destroying its own existence. Therefore, it points to serious gaps in the literature and has the potential to be an important research area (Küçükergin, 2021).

Poorly planned tourism development also affects the physical environment of touristic areas. First of all, the architectural designs of the hotels constitute an excess, namely a surplus on the cultural and visual environment. Sewage waste and garbage dumped into seas and rivers in holiday destinations are also common problems. However, tourists visit these areas because of their high level of natural beauty, their interest in architectural places and historical regions, and their interest in natural life (Archer & Cooper, 1994). In the study conducted by Ceylan (2001), the conditions of sustainable tourism development were explained in three expressions. The first of these is to meet the needs of the indigenous population according to the improved standard of living in both the short and long term. The second is to ensure the continuity of the tourist flow by meeting the increasing tourist demands. The third is the protection of the natural environment in line with these two determined objectives (Ceylan, 2001).

2.2. Environmental Practices in Türkiye

In order to control the environmental effects of the tourism sector in Türkiye, there are some environmental practices (blue flag, environmental awareness campaign-green star, etc.) applied by different organizations, especially the Ministry of Culture and Tourism. The first of these is the blue flag application. The blue flag program, which has been implemented in Türkiye since 1993, has an important place in coastal protection, development of environmental awareness and tourism marketing. In parallel with the awareness of environmental protection developing in the world, a number of criteria for beaches and marinas have been determined by the International Environmental Education Foundation. The beaches and marinas that meet these criteria are awarded with the Blue Flag for a term of one year. With its existing, blue-flagged beaches, Türkiye ranks third in the world after Spain and Greece (Ministry of Culture and Tourism, 2022a). As a result of the evaluations made by the International Environmental Education Foundation in 2022, there are 531 blue flagged beaches, 24 blue flagged marinas and 5 blue flagged yachts in Türkiye (TÜRÇEV, 2022).

Another environmental application applied in Türkiye is the green star application. Within the scope of sustainable tourism, in order to protect the environment, to develop environmental awa-

reness, to encourage and encourage the positive contributions of touristic facilities to the environment, accommodation facilities that have been demanding and sought after since 1993 have been given the "Environmentally Friendly Establishment Certificate" (pine-tree symbol) by the Ministry of Culture and Tourism. In 2008, the "Environmentally Sensitive Accommodation Facility Certificate" (green star symbol) was started to be given to the accommodation establishments by performing updates and developments. The application covers in detail the reduction of the consumption of energy, water, environmentally harmful substances and the amount of waste, the increase of energy efficiency, the promotion of the use of renewable energy sources, and the planning of accommodation establishments in an environmentally sound manner from the investment stage (Ministry of Culture and Tourism, 2022b). As of 05.08.2021, there are 456 Environmentally Sensitive Facilities with Tourism Business Certificates in Türkiye (Ministry of Culture and Tourism, 2022c).

Another environmental application applied in tourism establishments in Türkiye is the environmental label application. With environmental label applications, it is aimed to support sustainable consumption and production practices by encouraging establishments that follow an environmentally friendly process by taking into account areas such as low carbon emission, waste prevention, energy efficiency, water saving, and not using harmful chemicals in their services. Environmental Label Criteria for Tourist Accommodation Services were determined by the Ministry in 2020. The establishments that meet the relevant criteria are given an environmental label with a validity of five years (Ministry of Environment, Urbanization and Climate Change, 2022a).

Another application system that aims to protect the environment and reduce the effects is the White Star project. The project is given by the Hoteliers Federation and its main purpose is stated as the creation of environmentally sensitive programs by the hotels and the implementation of these programs as a whole with economic policies (Yılmaz et al., 2016).

Another environmentally friendly application is the Environmental Impact Assessment, which is being implemented both in Türkiye and in many countries of the world. First, the Environmental Impact Assessment Directive, adopted by the European Union in 1985, was later adopted and implemented worldwide. In Türkiye, it has been applied since 1993 (Kelgökmen, 2006). Environmental impact assessment (EIA) is the work to be carried out in the determination of the positive and negative effects of the planned projects on the environment, in the determination of the measures to be taken to prevent the negative effects or to minimize them in a way that will not harm the environment, in the determination and evaluation of the selected location and technology alternatives, and in the monitoring and control of the implementation of the projects (Ministry of Environment, Urbanization and Climate Change, 2022b).

The standard series published by the International Standards Organization (ISO) for the protection of the environment is called the ISO 14000 series. ISO 14000 series standards are basically a set of standards aimed at reducing the use of natural resources and minimizing the damage to soil, water and air. The standard certified in this series is the ISO 14001 standard. ISO 14001 is a management system developed to systematically reduce the damages that establishments cause or may cause to the environment and, where possible, to eliminate them (CTR International Certification, 2022). ISO 14001 Environmental Management System Standards are established for purposes such as protecting the environment and its balance, raising awareness of consumers, environmentally friendly production, eliminating harmful products. Establishments are willing to apply these standards in order to provide both a competitive advantage and to protect the environ-

ment (Mutlu & Yıldız, 2015).

2.3. Related Studies

When the studies on environmental performance in the literature were examined, it was determined that different studies were carried out especially for accommodation establishments and areas protected in tourism. Accordingly, in the literature, there are studies on environmental performance in accommodation establishments (Aminian, 2012; Carter et al., 2004; Chng et al., 2022; Ding & Pigram, 1996; Leslie, 2007; Tan et al., 2017), environmental performance in nature-based tourism areas (Moore et al., 2003), environmental studies in protected areas in tourism (Butzmann & Job, 2017; Erdogan & Tosun, 2009; Erdogan, 2012; Franco et al., 2021; Wu et al., 2017), tourism and environmental relationship (Bertan, 2009; Ceylan, 2001; Hjalager, 1996; Kousis, 2000; Pigram, 1980), environmental performance index (Pinar, 2022; Usman et al., 2020), certification in tourism (Satar & Güneş, 2017; Mutlu & Yıldız, 2015) and environmental protection in tourism establishments (Kızılırmak, 2011; Aykan & Sevim, 2013). It is acknowledged that the studies performed within the scope of the relationship between tourism and the environment are related to sustainability.

In the literature, environmental performance has also been investigated in coastal areas (Loizia et al., 2021) and green hotels (Nisar et al., 2021; Irani et al., 2022) apart from protected areas. In the study by Loizia et al. (2021), it was determined that the most important environmental problems in coastal areas are cigarette butts, straws and plastic containers. The results suggest that waste management strategies should be re-planned by local authorities, stakeholders, consultants and politicians. In addition, it is often recommended to organize environmental awareness activities for visitors to coastal areas (Loizia et al., 2021). Coastal areas are also one of the priority areas to be protected. For this reason, the results obtained also provide an idea about the protected areas. It is one of the common results in the literature to present environmental awareness activities especially to visitors coming to protected areas. According to the results of the study conducted by Nisar et al. (2021) on green hotels, the fact that green hotel employees have pro-environmental behaviors increases the environmental performance of the hotel. Similar results are found in the study by Irani et al. (2022). According to these results, hotel managers should support their employees' green behavior in order to increase environmental performance.

When the studies on environmental performance in accommodation establishments were examined, in the study conducted by Aminian (2012), it was concluded that hotel managers in Mashhad, Iran did not have knowledge about environmental performance and sustainability. In the study, the need to raise awareness of the hotel staff in the region about the environment was emphasized. In a study evaluating the environmental performance in coastal regions in Singapore, Chng et al. (2022) revealed that land use has a negative effect on the coastal ecosystem and that the accumulation of solid waste on the beaches negatively affects the environmental performance accordingly. In the study conducted by Ding and Pigram (1996), procedures for the environmental audit program were presented. In the study, the benefit of the process of improving environmental performance in tourism for the future was revealed. In the study conducted by Tan et al. (2017), the effects of environmental performance on financial performance of establishments in the tourism sector were examined. The results of the study reveal that environmental performance has a positive effect on financial performance.

When the studies on environmental performance in protected areas in tourism are reviewed, a study conducted by Erdogan and Tosun (2009) on Göreme Open Air Museum, which is on the UNESCO World Heritage List, is encountered.

The results of the study show that accommodation facilities in this region have low performance in issues such as energy efficiency, water saving, responsible waste management, environmental education, environmental awareness and environmental protection. In the study, the need for facility managers in especially protected areas to be interested, sensitive and knowledgeable about the environment was emphasized. The studies conducted by Aminian (2012) and Erdogan (2012) support the results of this study. In the study conducted by Franco et al. (2021), it was determined that the community-based environmental protection system constituted a legitimate social control area and socio-environmental governance mechanism in the Amazons of Brazil. It is stated that the community-based environmental protection system can also be applied in other countries. In the study conducted by Wu et al. (2017), marina with special protection status in China was examined within the scope of environmental performance indicators. The findings reveal that marina managers have a strategic importance for operational and integrated environmental management.

One of the studies on protected areas in the literature is Santarem et al. (2014) for the Peneda-Geres National Park in Portugal. It is an important study in terms of the management and sustainability of recreational activities in protected areas. In a different study on marine protected areas by Mota and Frausto (2015), the importance of training programs for the management of protected areas are highlighted. At the same time, the study contributes to the development of environmental awareness in protected areas.

The study by Bonfato and Ferreira (2021) reveals the necessity of adopting an appropriate environmental policy for the operation of resorts in Brazil. A study on environmental sustainability in hotels and the role of employees in implementing green practices, in Portugal, shows employees' lack of knowledge about hotel's environmental management procedures (Ferreira et al., 2021).

The study conducted by Pinar (2022) within the scope of environmental performance index, sensitivity to indicators and categories of environmental performance was examined. The results of the study show that the environmental health category has a higher importance. In another study examining environmental performance within the scope of the index, Usman et al. (2020) examined the role of corporate quality on environmental performance in EU-28 countries. The results of the study reveal that corporate quality increases environmental performance. On the contrary, it was concluded that tourism development also reduced environmental performance. The findings reveal that policy makers should pay more attention to institutional quality improvement to reduce the environmental damage caused by tourism development. In the study conducted by Satar and Güneş (2017) on certification in tourism, the contributions made to sustainable tourism with certification in accommodation establishments in Türkiye were discussed.

In the literature, there are many studies on tourism and the environment, tourism and sustainability (Bertan, 2009; Ceylan, 2001; Hjalager, 1996; Kousis, 2000; Pigram, 1980). The basis of these studies is the idea that economic development in tourism is possible with sustainable tourism development. Sustainable tourism development refers to a structure that includes many stakeholders and requires wide participation. In particular, the study conducted by Kousis (2000) provides evidence of local environmental mobilizations against tourism activities in Greece, Spain and Portugal from the early 70s to the mid-90s. In the study conducted by Pigram (1980), it was stated that tourism and the environment were not only related but also interdependent concepts. In the study conducted by Kızılırmak (2011), it was emphasized that not only the economic consequences of tourism but also its environmental consequences should be taken into account when performing tourism planning.

Environmental performance also has some effects on managers' green knowledge and leadership styles (Riva et al., 2021), economic complexity (Boleti et al., 2021), and financial performance of hotels (Zhang & Xie, 2021). In the study by Riva et al. (2021), managers' green knowledge and leadership styles have a positive effect on environmental performance. In addition, in the study by Zhang and Xie (2021), environmental performance has a positive effect on sales. In fact, the study reveals that environmental performance has a positive effect on sales. Accordingly, green hotels constitute the market differentiation and attract eco-friendly tourists. The findings reveal that green hotels in high-income countries have higher incomes than other hotels. In contrast, environmental performance in low-income countries has not been found to have a positive effect on profit margins in green hotels. According to Nassani et al. (2022), resources must be protected in order to achieve environmental performance targets. So, it is an important requirement to protect existing resources and develop them in an environmentally friendly manner in order to increase environmental performance in protected areas.

2.4. Importance of Protected Areas

The protected area can be defined as "land, water or sea areas with conservation status managed according to the relevant legislation in order to protect biological diversity, natural and related cultural resources and to ensure continuity" (Ministry of Environment, Urbanization and Climate Change, 2022c). The protected areas in Türkiye are managed by three ministries, the Ministry of Environment, Urbanization and Climate Change, the Ministry of Agriculture and Forestry, and the Ministry of Culture and Tourism, in line with various legislation. The special environmental protection areas, natural protected areas, natural assets (monumental trees and caves) evaluated within the protected areas are managed by the Ministry of Environment, Urbanization and Climate Change, forests, national parks, natural parks, natural protection areas, natural monuments, wildlife development areas, important wetlands are managed by the Ministry of Agriculture and Forestry, and immovable cultural assets, archaeological, historical and urban protected areas are managed by the Ministry of Culture and Tourism. This three-headed management and the presence of various legislations generally cause confusion in the management of protected areas. Protected areas in Türkiye require greater sensitivity in adjusting the protection-use balance compared to other areas. Facilities in these areas should pay more attention to environmental protection than other facilities.

Protected areas are extremely important in terms of contributing to the country's economy and sustainability. However, choosing the right areas, making plans, and observing the protection/use balance are of vital importance in terms of tourism. Many protected areas aiming to ensure the sustainability of living and non-living resources, which have an important function in ensuring the ecological balance, are opened for use only with tourism and recreation in mind. As a result of the increase in these activities, in order to provide short-term economic benefits in natural landscape areas, many major and irreversible problems may occur, from the change of fauna and flora to soil loss, from air pollution to visual pollution. Tourism and recreation activities need to be carefully planned, managed and monitored to ensure long-term sustainability in protected areas. Because tourism in protected areas develops depending on the quality of natural and cultural resources (Mansuroğlu et al., 2021). The sustainability of protected areas is directly proportional to the sustainability of the tourism sector. Because protected areas also constitute touristic attractions.

Many landscapes around the world are being destroyed by activities such as forestry and food production. Today, 1/3 of all land in the world

has been destroyed or is being destroyed. As a result, biodiversity is damaged and essential ecosystem services such as carbon storage are compromised. Protected areas offer solutions to eliminate these problems. Thanks to protected areas, natural and cultural resources, human health, sustainable livelihoods and sustainable development are supported (IUCN, 2022).

3. Methodology

3.1. Study Area

Bolu province is located in the Western Black Sea Region. It is surrounded by Zonguldak in the north, Karabük in the northeast, Çankırı in the east, Ankara in the south, Bilecik and Eskişehir in the southwest, and Düzce and Sakarya in the west. Since it is on the transit route of Istanbul and Ankara provinces, it has transportation convenience and is in an important location. Due to its proximity to the provinces of Istanbul and Ankara and convenient transportation, there is a high tourist transit from this city. According to the data of 2019, a total of 1.790.160 people visited the protected areas in Bolu on a daily basis (Kök & Kurnaz, 2020). Bolu's natural beauties and geographical location reveal the potential of the city in terms of tourism sector.

Bolu province is one of the most important cities in Türkiye within the scope of nature tourism. The nature, landscape and natural beauties of Bolu constitute an important potential for the tourism sector. According to the nature tourism information of the province of Bolu, there is a vegetation cover 64% of which is covered with forests in the city. There are 14 natural lakes, 147 ponds and around 320 plateaus in the city. In addition, there are 2 national parks, 8 nature parks, 3 nature protection areas and 3 wildlife development areas in Bolu. These areas are also among the protected areas in the city. Protected areas in Bolu province as of 2022 are listed in Table 1.

Table 1 | Protected Areas in Bolu

Status	*Names (Original)*
National Parks	Yedigöller Milli Parkı
	Abant Gölü Milli Parkı
Nature Protection Areas	Kökez
	Akdoğan and Rüzgârlar Ebe Çamı
	Kale Bolu Fındığı
Nature Parks	Göksu
	Beşpınarlar
	Bolu Karagöl
	Sünnet Gölü
	Bolu Gölcük
	Sülüklügöl
	Kargalı Gölcük
	Ayıkayası
Wildlife Development Site	Bolu Göynük Kapıormanı YHGS
	Bolu Yedigöller YHGS
	Bolu Abant YHGS

Source: Own elaboration

The province of Bolu was chosen for the study due to reasons such as creating an important potential in Türkiye in terms of the tourism sector, ease of transportation, and the abundance of protected areas. Within the scope of the study, accommodation establishments located in protected areas in Bolu were preferred. The reason for the preference of accommodation establishments in protected areas is the limited number of studies on protected areas in the literature. The map showing the protected areas in Bolu is given in Figure 1.

The hotels located in the protected areas shown in Figure 1 were chosen within the scope of the research. According to the information received from Bolu Provincial Directorate of Culture and Tourism, Bolu Provincial Directorate of Environment, Urbanization and Climate Change, Bolu Provincial Directorate of Agriculture and Forestry, 1 of these facilities has a tourism operation certificate and 42 has a municipal certificate, and a total of 43 are within the protected areas.

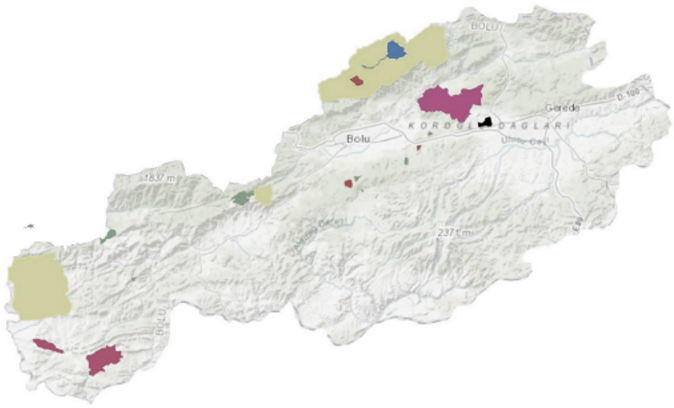

Figure 1 | Protected Areas in Bolu
Source: Bolu Provincial Natural Tourism Implementation Action Plan 2016-2019

3.2. Sample and Procedure

The data was collected from establishment owners and executive managers in accommodation establishments located in protected areas in Bolu, Türkiye. Bolu province in Türkiye is one of the most popular alternative tourism destinations preferred by local tourists with its forested areas, nature and protected natural, historical and cultural areas, located between Istanbul and Ankara provinces with the highest population. There are 128 accommodation facilities in Bolu, 28 of which are tourism business certified and 100 of which are municipal certified (Bolu Provincial Directorate of Culture and Tourism, 2022). *Tourism Business Certified*, according to the qualifications of the tourism facilities operating in Türkiye, after the application is made during the operation phase of the tourism facility, the validity period given by the Ministry of Culture and Tourism, if deemed appropriate, is subject to the inspections made by the controllers. *Municipal Certified*, if it is found suitable according to the qualifications of the tourism facilities, it is a document issued by the Municipality where the facility is located and subject to inspections. According to the information received from Bolu Provincial Directorate of Culture and Tourism, Bolu Provincial Directorate of Environment, Urbanization and Climate Change, Bolu Provincial Directorate of Agriculture and Forestry, 1 of these facilities has a tourism operation certificate and 42 has a municipal certificate, and a total of 43 are within the protected areas. Establishment and general managers of 43 establishments were visited by the researchers in the first week of March 2022.

In the study, 43 usable questionnaires were collected. 55.8% of the participants were university graduates and 39.5% were high school graduates. The majority of the establishments where the respondents work are family businesses (55.8%) and local businesses (30.2%). 86% of the establishments operate all year round. Domestic tourists constitute the most regular customers of 91% of the accommodation facilities. European tourists constitute the majority (51.2%) of the foreign tourist profile coming to businesses. The number of personnel working in the establishments varies between 2 and 45. The average number of personnel employed is approximately 7. The operation period of the establishments varies between 1 and 36 years. The average duration of activity is approximately 12 years.

3.3. Measures

In this study, a 5-point Likert scale (0 = no performance to 4 = the highest performance) was applied. The scale items are taken from the En-

glish literature. For this reason, the language validity has been checked. The items were translated into Turkish by four language experts who speak both English and Turkish through the back-to-translation method (Brislin, 1976). Environmental performance (EP) was measured using the scale developed by Erdoğan and Tosun (2009). The scale consists of 7 dimensions (architecture and landscape design, energy efficiency, waste reduction, water efficiency, education and training for environmental awareness, communication for environmental awareness, managerial knowledge on the environmental protection) and 34 items. The items in the scale are presented in Annex A.

The environmental performance questionnaire applied to hotel managers consists of two parts. In the first part of the questionnaire, the environmental performance (EP) scale developed by Erdoğan and Tosun (2009) is used. The questionnaire consists of 7 dimensions and 34 statements. These dimensions are respectively as follows: architecture and landscape design (4 statements), energy efficiency (7 statements), waste reduction (5 statements), water efficiency (4 statements), education and training for environmental awareness (4 statements), communication for environmental awareness (5 statements), managerial knowledge on the environmental protection (5 statements). The second part of the questionnaire contains demographic information of hotel managers. In this part, there are also questions for hotel managers regarding environmental documents or awards, environmental policies and programs held by the hotel.

3.4. Data Analysis

In this study, AMOS program was applied for confirmatory factor analysis. Due to its multidimensional structure, EP was included in the measurement model as multidimensional (second level confirmatory factor analysis). The maximum likelihood method was used to test the measurement model. Since the factor load was less than 0.5, 6 items were removed from the scale. The overall χ^2 measure, CFI [comparative fit index], NFI [formed fit index], and RMSEA [root mean square error of approximation] were used to assess the goodness of fit of statistical model. χ^2/df value<5.0 indicates a "reasonable fit" (Wheaton et al., 1977; Marsh and Hocevar, 1985). CFI and NFI values greater than or equal to 0.90 indicate acceptable fit (Tabachnick and Fidell, 2007; Byrne, 2016). On the other hand, RMSEA value<0.08 indicates acceptable fit (Gürbüz, 2021). The results of the second level confirmatory factor analysis showed that the scale did not have acceptable fit indices ($x^2 = 643.519$, df = 343, $p < 0.01$, $x^2/df = 1.876$, RMSEA = 0.144, CFI = 0.526, NFI = 0.364). If, as a result of confirmatory factor analysis, the threshold values accepted in the literature could not be obtained and the structures of the scales could not be verified, exploratory factor analysis can be applied to discover the relationship pattern between the scale items and factors (Gürbüz, 2021). In this study, according to the results of the second level confirmatory factor analysis, it has been switched to the exploratory factor analysis due to the fact that the scale does not have acceptable fit indices. SPSS program was applied for exploratory factor analysis. Varimax method was used for the analysis. As a result of the reliability analysis, 9 items that significantly reduced the Cronbach's alpha coefficients related to the scale were removed from the scale. 5 of the extracted items belong to the dimension of communication for environmental awareness. The alpha coefficient for this dimension is 0.397. Communication for environmental awareness dimension was completely removed from the scale.

The skewness and kurtosis values of the variables (groups evaluated separately) for scale (EP) and all dimensions (architecture and landscape design, energy efficiency, waste reduction, water efficiency, education and training for environmental

awareness, managerial knowledge on the environmental protection) based on arithmetic averages and the (p) values resulting from the Levene test are presented in Table 2. The use of parametric tests (t-test) for comparative analysis by taking arithmetic means into account depends on fulfilling the assumption of normal distribution and meeting the condition of homogeneity of variances. In order to ensure the normal distribution assumption, skewness and kurtosis values should be between +2 and -2 (George and Mallery, 2010). In order to ensure the homogeneity of the variances, the Levene test result (p) value must be greater than 0.05. In cases where all of these conditions were met, the t-test was used, and in cases where it was not, the Mann-Whitney U was used. SPSS program was applied for these tests.

Table 2 | Analysis Results of The Tests That Can Be Used

Dimensions**	Variables	Groups	Skewness	Kurtosis	Levene (p)	Parametric	Nonparametric	Tests
EP	Business type	Family business	0.352	**2.375**	0.927		*	Mann-Whitney U
		Local business	-0.327	-0.585				
	Education status	High school	**2.131**	**6.486**	0.384		*	Mann-Whitney U
		University	-0.735	0.198				
ALD	Business type	Family business	-0.527	-1.095	0.838		*	Mann-Whitney U
		Local business	-1.705	**3.807**				
	Education status	High school	-0.484	-1.027	0.979		*	Mann-Whitney U
		University	-1.447	**2.925**				
EE	Business type	Family business	-1.178	0.680	0.172	*		t-test
		Local business	-0.603	0.703				
	Education status	High school	-1.095	-0.059	0.170	*		t-test
		University	-0.394	0.242				
WR	Business type	Family business	1.342	**3.394**	0.663		*	Mann-Whitney U
		Local business	1.000	1.537				
	Education status	High school	**2.520**	**8.057**	0.793		*	Mann-Whitney U
		University	0.454	0.127				
WE	Business type	Family business	0.469	**2.312**	0.497		*	Mann-Whitney U
		Local business	0.644	0.224				
	Education status	High school	1.504	**3.082**	0.704		*	Mann-Whitney U
		University	0.026	0.226				
ETEA	Business type	Family business	-0.187	-0.769	0.202	*		t-test
		Local business	-0.888	0.081				
	Education status	High school	0.094	-0.078	0.560	*		t-test
		University	-0.446	-0.555				
MKEP	Business type	Family business	-0.193	-0.556	0.647	*		t-test
		Local business	-0.302	-0.401				
	Education status	High school	0.673	0.685	**0.024**		*	Mann-Whitney U
		University	-0.282	-1.113				

** EP: Environmental performance, ALD: Architecture and landscape design, EE: Energy efficiency, WR: Waste reduction, WE: Water efficiency, ETEA: Education and training for environmental awareness, MKEP: Managerial knowledge on the environmental protection

4. Results

4.1. Descriptive Results

The mean EP arithmetic score was 2.04 (sd:0.43). Architecture and landscape design (ALD) arithmetic average 3.30 (sd:0.66), energy efficiency (EE) arithmetic average 1.92 (sd:0.60), waste reduction (WR) arithmetic average 1.90 (sd:0.59), water efficiency (WE) arithmetic average 1.61 (sd:0.83), education and training for environmental awareness (ETEA) arithmetic average 2.58 (sd:0.63), managerial knowledge on the environmental protection (MKEP) arithmetic average 1.21 (sd: 0.75). Arithmetic means are presented in Table 3.

4.2. Measurement Results

Arithmetic averages, standard deviations (SD), factor loads, alpha coefficients, explained cumulative total variances, KMO and Barlett's test results for the scale are presented in Table 3. The factor loadings related to the scale were greater than 0.5. The alpha coefficients for the scale are between 0.855 and 0.661. Explored Cumulative Total Variance is between 71.363% and 43.580%. KMO is between 0.802 and 0.562.

Table 3 | Findings From The Scale

Variables	Mean	Sd	λ	α
EP	2.04	0.43		0,855
ALD	3.30	0.66		0,819
Use of local materials in the building (construction)	3.11	1.05	0,724	
Hotel architecture compatible with the environment	3.46	0.63	0,869	
Garden landscaping suitable for the environment	3.23	0.84	0,838	
Plan that does not disrupt the natural and historical environment	3.42	0.69	0,878	
Explored Cumulative Total Variance % 68,801				
KMO and Bartlett's Tests		KMO 0,802 Bartlett's Test p .000		
EE	1.92	0.60		0,661
Use of the key card control system in the guest rooms.	0.51	0.63	0,658	
Energy-saving control system in guest rooms	0.81	0.79	0,514	
Use of luminous cat's-eye in exterior lighting	1.95	1.27	0,746	
Purchase of low energy consuming materials	3.00	0.81	0,643	
Use of energy-saving bulbs in rooms	3.34	0.99	0,715	
Explored Cumulative Total Variance % 43,580				
KMO and Bartlett's Tests		KMO 0,646 Bartlett's Test p .000		
WR	1.90	0.59		0,670
Separation of solid waste at source	1.81	0.98	0,667	
Using recycled paper in brochures	2.06	0.79	0,696	
Composting organic and food waste	1.65	1.02	0,540	
Purchase of recyclable material	2.23	0.84	0,650	
Cooperation with recycling companies	1.74	0.90	0,745	
Explored Cumulative Total Variance % 43,966				
KMO and Bartlett's Tests		KMO 0,562 Bartlett's Test p .000		
WE	1.61	0.83		0,715
Use of treated water in garden irrigation	1.90	1.10	0,728	
Wastewater treatment	1.46	0.95	0,857	
Use of photocell water fixtures	1.46	1.05	0,818	
Explored Cumulative Total Variance % 64,403				
KMO and Bartlett's Tests		KMO 0,645 Bartlett's Test p .000		
ETEA	2.58	0.63		0,749
Providing general environmental training to the personnel	2.67	0.68	0,922	
Providing environmental sensitivity awareness training to personnel	2.67	0.64	0,917	
Participation in environmental meetings	2.39	0.95	0,670	
Explored Cumulative Total Variance % 71,363				
KMO and Bartlett's Tests		KMO 0,604 Bartlett's Test p .000		
MKEP	1.21	0.75		0,810
Information about ISO 14001	1.53	1.22	0,846	
Information about the Pine-Tree Awards	1.13	0.98	0,704	
Information about TÜROFED White Star Project	0.97	0.88	0,665	
Information about the Ministry Environmentally Sensitive Accommodation Facilities Project	1.32	1.01	0,772	
Information about TÜROB Greening Hotels Project	1.09	0.83	0,786	
Explored Cumulative Total Variance % 57,353				
KMO and Bartlett's Tests		KMO 0,726 Bartlett's Test p .000		

4.3. Results for Comparison of Means

The evaluations of establishment owners and general managers regarding EP do not differ significantly according to the type of establishment (U=147.500, p>0.05). On the other hand, evaluations of EP do not differ significantly according to the educational status of the participants (U=169.500, p>0.05). The evaluations of establishment owners and senior managers regarding ALD do not differ significantly according to the type of business (U=142,000, p>0.05). On the other hand, the evaluations of ALD did not differ significantly according to the educational status of the participants (U=195.500, p>0.05). The evaluations of establishment owners and general managers regarding EE do not differ significantly according to the type of establishment (t=-0.611, p>0.05). On the other hand, evaluations of EE did not differ significantly according to the educational status of the participants (t=-1.337, p>0.05). The evaluations of establishment owners and general managers regarding WR do not differ significantly according to the type of establishment (U=138.000, p>0.05). On the other hand, evaluations of WR do not differ significantly according to the educational status of the participants (U=185.000, p>0.05). The evaluations of establishment owners and general managers regarding WE do not differ significantly according to the type of establishment (U=136.000, p>0.05). On the other hand, evaluations of WE do not differ significantly according to the educational status of the participants (U=193.500, p>0.05). The evaluations of establishment owners and general managers regarding ETEA do not differ significantly according to the type of establishment (t=0.641, p>0.05). On the other hand, evaluations of ETEA did not differ significantly according to the educational status of the participants (t=0.983, p>0.05). The evaluations of establishment owners and general managers regarding MKEP do not differ significantly according to the type of establishment (t=-0.993, p>0.05). On the other hand, the evaluations of MKEP did not differ significantly according to the educational status of the participants (U=175.500, p>0.05).

It can be said that the performances of the establishments participating in the study within the EP are not very good. As a matter of fact, 72% of establishments do not have an environmental program and policy. In 91% of establishments, environmental programs and policies are not in written form. In addition, 88% of the enterprises do not have a written environmental impact assessment report. There is no written report in 84% of the establishments. On the other hand, 81% of the establishments are not members of any organization related to the environment. 79% of establishments do not have any awards for environmental protection/performance. Despite all these, 56% of the establishments have respective personnel responsible for the protection of the environment.

5. Discussion

5.1. Summary of Findings

In this study, a 5-point Likert scale (0 = no performance to 4 = the highest performance) was applied. The highest value that can be obtained in the survey is 4 points. Since the scale expressions were evaluated over 4 points, the average was calculated as 2 points. The EP of businesses in protected areas is slightly above average ($\overline{x}$= 2.04/4). It cannot be stated to be sufficient. ALD is highly above the general average ($\overline{x}$= 3.30/4). The performances of the establishments regarding ALD are very good. On the other hand, ETEA is also above the general average ($\overline{x}$= 2.58/4). It can be said that the performances of the establishment regarding ETEA are good. However, MKEP ($\overline{x}$= 1.21/4), WE ($\overline{x}$= 1.61/4), WR ($\overline{x}$= 1.90/4), EE ($\overline{x}$= 1.92/4) are below the average of EP. In par-

ticular, it is considered important to increase the performance of establishments regarding MKEP. The performance of the establishments in terms of energy saving by using the key card control system in the rooms evaluated under EE size is quite low. The evaluations of establishment owners and general managers regarding the dimensions of EP and EP do not differ according to the type of business and education status.

5.2. Theoretical Implications

When the studies conducted in the literature are examined, the vast number studies on the environmental performance level of accommodation establishments (Nisar et al., 2021; Irani et al., 2022; Aminian, 2012; Carter et al., 2004; Chng et al., 2022; Ding & Pigram, 1996; Leslie, 2007; Tan et al., 2017; Kızılırmak, 2011; Aykan & Sevim, 2013) can be encountered. However, it has been determined that a limited number of studies have been conducted on the environmental performance of accommodation establishments located in tourism protected areas (Butzmann & Job, 2017; Erdogan & Tosun, 2009; Erdogan, 2012; Franco et al., 2021; Wu et al., 2017). Therefore, the results of this study will be able to contribute by providing the opportunity to compare with the results of other studies obtained in the literature.

The results obtained from the study support the results of the study conducted by Erdogan and Tosun (2009), Erdogan (2012) and Aminian (2012). It has been concluded that the accommodation establishments in especially protected areas are inadequate in terms of energy and water saving. In addition, it has been determined that there is a lack of managerial knowledge in environmental awareness and protection of the environment in the managers in these establishments. In contrast to these, the results of the study conducted by Wu et al. (2017) show that managers have a significant level of environmental awareness in marinas with special protection status. As a result, it is acknowledged that this study performed within the scope of the relationship between tourism and the environment is related to sustainability and contributes to the literature in this sense. Increasing the number of studies to be conducted on accommodation establishments in protection areas in different countries and regions will contribute to the literature.

5.3. Practical Implications

The results of the study provide practical contributions to all stakeholders, especially the managers of accommodation establishments in protected areas. First of all, the findings reveal a negative picture in other dimensions other than ALD. Enterprises need to take some measures, especially managerial information in terms of energy and water saving, environmental awareness and environmental protection. In particular, in-service trainings related to environmental performance should be provided in terms of high environmental awareness of establishment employees. Because studies in the literature (Nisar et al., 2021; Irani et al., 2022) show that there is a positive relationship between environmentally sensitive personnel or personnel with high environmental awareness and the environmental performance of the enterprise. Establishment managers should be selected from people with high environmental awareness. The materials and instruments used by the establishments should consist of environmentally friendly materials. Establishments should conduct an environmental performance evaluation within themselves and reveal their deficiencies. Written brochures and materials should be available in order to create and increase environmental awareness in establishments. Recycled paper should be used in brochures. It is important that establishments become members of environmental platforms and cooperate with environmental organizations and recycling companies.

It is recommended that establishments receive an environmental impact assessment report and announce it.

Establishments should focus on low energy consuming materials in material purchases. However, establishments should prefer recyclable materials. Particularly the use of energy-saving bulbs in the rooms should be ensured. Necessary measures (collection, separation, etc.) have to be taken regarding waste management. General environmental and environmental awareness trainings have to be provided to the personnel. Environmental sensitivity should also be felt by the incoming guests from the entrance of the business. Community participation in environmental activities should be encouraged and information should be obtained from all stakeholders (guests, agencies, environmental organizations, etc.). Finally, relevant environmental documents (ISO 14001, Green Star, etc.) should be obtained according to the status of the establishments.

5.4. Limitations and Future Research

The study is limited to accommodation establishments in protected areas in Bolu province. By conducting a similar study with a larger sample in protected areas in other provinces, a general environmental performance of the facilities in protected areas in Türkiye can be revealed. Small-scale family businesses constitute the majority of accommodation establishments in the study. In subsequent studies, the performances of larger corporate establishments and small-scale establishments in protected areas can be compared. In addition, regardless of whether it is in protected areas, the environmental performance of the Turkish hotel sector can be revealed in general by conducting similar studies in the provinces that are in the top three in Türkiye with the number of facilities and visitors such as Istanbul, Antalya and Muğla.

6. Conclusion

In a period where global climate change is felt rapidly, environmental policies and sustainability issues are among the top priority issues. It is vital to follow environmental policies in terms of the continuity of the tourism sector. In this study, tourism establishments in protection areas, which have an important place in the tourism sector, were evaluated in terms of environmental performance. Environmental performance levels of accommodation establishment managers in protection zones in Bolu province of Türkiye are discussed. The findings obtained support similar studies in the literature. In summary, it has been determined that the managers of the accommodation establishments in the tourism protection areas have a lack of managerial knowledge in terms of environmental awareness and protection of the environment. In addition, it has been determined that the cooperation with the stakeholders is not sufficient.

Environmental performance levels of accommodation establishments in tourism protection areas affect the future of the tourism sector. The fact that all businesses in the tourism sector carry out their activities within the framework of social participation will also increase cooperation with stakeholders. At this point, establishments in tourism protection areas are required to closely follow environmental policies, have environmental documents and cooperate with environmental organizations. In order to ensure environmental development, as the first step, environmental awareness is required to be created. In this regard, businesses should take measures to increase environmental awareness towards their internal and external stakeholders.

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Annex A.

Items
A.1. Architecture and landscape design (ALD)
● Use of local materials in the building (construction)
● Hotel architecture compatible with the environment
● Garden landscaping suitable for the environment
● Plan that does not disrupt the natural and historical environment
A.2. Energy efficiency (EE)
● Use of the key card control system in the guest rooms.
● Energy-saving control system in guest rooms
● Use of solar energy
● Use of photocell lighting in toilets
● Use of luminous cat's-eye in exterior lighting
● Purchase of low energy consuming materials
● Use of energy-saving bulbs in rooms
A.3. Waste reduction (WR)
● Separation of solid waste at source
● Using recycled paper in brochures
● Composting organic and food waste
● Purchase of recyclable material
● Cooperation with recycling companies
A.4. Water efficiency (WE)
● Use of treated water in garden irrigation
● Wastewater treatment
● Use of photocell water fixtures
● Use of water-saving measures in changing the tablecloth and bed linen
A.5. Education and training for environmental awareness (ETEA)
● Providing general environmental training to the personnel
● Providing environmental sensitivity awareness training to personnel
● Providing environmental training to guests
● Participation in environmental meetings
A.6. Communication for environmental awareness (CEA)
● Brochures with information on environmental protection
● Obtaining guest opinions about the environmental activities of the hotel
● Implementation of guest opinions about the environment in hotel activities
● Encouraging guests to use public transport
● Publication of educational posters for customers
A.7. Managerial knowledge on the environmental protection (MKEP)
● Information about ISO 14001
● Information about the Pine-Tree Awards
● Information about TÜROFED White Star Project
● Information about the Ministry Environmentally Sensitive Accommodation Facilities Project
● Information about TÜROB Greening Hotels Project